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MARIJUANA BEHAVIORS IN THE ARABIAN GULF (GCC): APPLYING THEORY OF PLANNED BEHAVIOR

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MARIJUANA BEHAVIORS IN THE ARABIAN GULF (GCC): APPLYING THEORY OF PLANNED BEHAVIOR

THESIS

A thesis submitted in partial fulfillment of the
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ABSTRACT OF THESIS

MARIJUANA BEHAVIORS IN THE ARABIAN GULF (GCC): APPLYING THEORY OF PLANNED BEHAVIOR

The theory of planned behavior is a great tool for understanding predictors of drug use, specifically marijuana. Although the theory has been applied in the U.S. and European context, research on the predictors of behavioral intention for marijuana use within the Arabian Gulf context is limited. This thesis provides an overview of the theory of planned behavior as used in the U.S. and European context. An argument for the need to better understand predictors of behavioral intentions to use drugs, in the Arabian Gulf Region, prior to developing interventions and preventions is presented. Data was collected from 95 participants between the ages of 18-25 who were from the six GCC countries. Participants had the option to complete the survey in English or in Arabic. Results of the study suggest attitudes are the strongest predictor for behavioral intentions to use marijuana. Knowledge and sensations seeking were not significantly related to behavioral intentions for marijuana use within the current sample.

KEYWORDS: Theory of Planned Behavior, Behavioral Intention, Marijuana, Arabian Gulf, GCC

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MARIJUANA BEHAVIORS IN THE ARABIAN GULF (GCC):
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To my Parents

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"All the praises and thanks be to Allah, who has guided us to this, never could we have found guidance, were it not that Allah had guided us" (Al A'raf, 43)

الحمـــد لله الـــذي هـــدانـــا لهـــذا ومـــا كنـــا لنهتـــدي لـــولا أن هـــدانـــا اللـــه

A fellow grad student, and good friend once said, "*In grad school, professors will pull the rug from under you, but give you a trampoline so you bounce back*".
I cannot thank my committee members enough for their continuous support and encouragement.

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Substance abuse is a growing issue in many parts of the world. Compared to other drugs, cannabis use has been increasing globally since 2009, particularly within the Asian continent (UNODC, 2013), where the Arabian Peninsula lies. The World Health Organization (2011) estimates within the Eastern Mediterranean region alone, 35% of individuals suffer from a drug abuse disorder. Hashish (cannabis) is traditionally used for medical reasons in the Arabian Gulf countries (Al Harthi & Al Adawi, 2002). Even though these substances are illegal, opium was also considered a medicinal substance and was recommended by great Arab figures (Al Harthi & Al Adawi, 2002). Amir's (2001) comparison of drug abuse behaviors between a Saudi Arabian sample and Emirati sample of drug addicts found that one of the most common drugs abused is hashish, also known as marijuana. Although, one of the most common substances abused in the Arabian Gulf countries is hashish, little is known regarding the prevalence of hashish within Arab communities. Due to heroin becoming the drug of choice in several Middle Eastern countries, research has focused on Heroin addicts. Unfortunately, the focus on heroin has created a dearth of research on non-abusive or non-treatment seeking individuals, as well as lack of research on other drugs such as marijuana or hashish (Al Marri & Oei, 2009).

Furthermore, a number of sociocultural factors serve as barriers to drug prevention education in the Arabian Gulf Region. Specifically, among the six Arabian Gulf countries that lie along the Arabian Peninsula, namely the United Arab Emirates (UAE), Bahrain, Kuwait, the Kingdom of Saudi Arabia (KSA), Oman, and Qatar (Almarri & Oei, 2009). These countries form the Gulf Cooperation Council of the Arab

States (GCC), created in 1981, which all share religious, cultural, ethnic, social, economic, and geographical similarities. A major factor in the spread of substance abuse is the geographic location of these countries, which allows for increased drug trafficking from surrounding underdeveloped countries (Al Harthi & Al Adawi, 2002). Since the Arabian Gulf has become a major point for drug transportation, the authorities within the GCC countries have implemented strict drug trafficking laws, up to and including the death penalty, in an effort to reduce drug smuggling with the hopes of curbing young adults' engagement in drug abuse (Al-Balushi, 2003).

In addition to drug trafficking laws, the GCC countries have implemented several campaigns in an effort to persuade citizens to prevent or decrease use. These campaigns have been largely ineffective as drug trafficking continues to increase (Al-Kandari, Yacoub & Omu 2000). The National Committee for Drug Control (NCDC) in Kuwait and the Public Trustees Endowment Fund (PTEF) have developed campaigns that focus on the consequences of substance abuse (Al-Kandari, Yacoub & Omu 2007). However, there are no accurate statistics for the magnitude of drug use in Kuwait (Al-Kandari et al., 2007). Further research, especially theoretically-driven social scientific research, is needed to better understand the prevalence and behaviors associated with drug abuse in the GCC before effective campaigns can be developed.

One especially relevant theory in the health literature is the theory of planned behavior (TPB), which attempts to predict behavioral intentions as a function of attitudes, perceived norms and self-efficacy (Azjen, 1991). As such, the general goal of this thesis is to apply the theory of planned behavior to a cross-sectional survey research exploration of marijuana behaviors in the GCC. Utilizing TPB to better understand predictors of

marijuana use in the GCC countries will aid in the development of effective intervention and prevention campaigns that target the strongest predictor of drug use.

Although research on drug abuse is limited within the GCC region, several studies suggest reasons for initiation and increase in substance abuse among the GCC societies. Al Marri and Oei (2009) suggest peer influences, curiosity, stress, and family problems as reasons for initiation of drug use among a Saudi sample. Similarly, peer and family influences, as well as excessive free time and money contribute to the initiation of drug use in Kuwait (Al-Kandari et al., 2000). Lack of awareness and knowledge regarding drug use were also reasons for initiation of drug use among both the Saudi and Kuwaiti sample (Al-Kandari et al., 2000). Al Marri and Oei's (2009) review of the literature regarding attitudes towards drug use indicate that the majority of respondents reported their view on drug use in relation to religious values, such as angering God. According to Al Marri and Oei, an approach incorporating religion offers the best method for prevention and treatment campaigns. Attitudes towards drug use and abuse need to be better understood in order develop effective prevention or cessation campaigns.

The lack of knowledge among the Omani society regarding drug types, treatment, drug abuse effects and punishment may also contribute to the prevalence of drug use in Saudi Arabia and Kuwait (Al Bulushi, 2003). Unless a more effective series of intervention strategies, including campaigns, are implemented, the drug issue in Oman, and possibly the neighboring GCC countries, will continue to intensify (Al Harthi & Al-Adawi, 2002). It must be noted that effective drug prevention campaigns are only possible after a thorough understanding of the behaviors (in this case marijuana use) have been identified. The current study is a necessary first step.

From the limited literature on drug abuse in the region it is evident that regardless of religious and cultural constraints, drug abuse is an existing problem among the Arabian Gulf countries (Al Marri & Oei, 2009). Further research is needed in the Muslim and Arab communities to better understand the nature and magnitude of the drug issue within the GCC countries (Hafeiz, 1995).

Several factors have been postulated as contributors to drug abuse in the GCC. However, in order to develop effective campaigns, determinants of behavioral intention for drug abuse among the targeted population need to be more clearly understood. Predictive factors for the increase of substance abuse with the Arabian Gulf region include, but are not limited to: a lack of knowledge regarding drug use and consequences, peer influences, boredom, breakdown of family traditions, media influences, and the rapid economic growth of the GCC countries may be reasons (Al Harthi & Al Adawi, 2002). Due to the conflicting views on the potential causes of substance abuse, theory driven research is crucial to examine predictors of drug use, especially marijuana. AbuMadaini (2008) emphasizes the need for community-based epidemiologic studies in order to better understand the increase in drug addiction and shift in drug abuse patterns, such as age, drug of choice, and education status.

Rather than focusing on an atheoretical list of potential predictors, the theory of planned behavior will be applied to identify the four strongest predictors of marijuana use in the GCC. Namely, positive attitudes towards marijuana, perceived norms, self-efficacy, and behavioral intentions.

Understanding the culture within the GCC region is vital to the development of successful prevention and intervention campaigns (Al Marri and Oei, 2009). Al-Kandari

et al. (2000) suggested school curriculum should include drug use education and awareness of the risk involved in drug use, self-efficacy skills, and communication skills. Al-Kandari et al. (2007) suggested identifying individuals who are at a higher risk of engaging in drug use, such as individuals who have experimented with drugs or have a history of drug abuse.

Communication scholars (Cappella, Fishbein, Barrett, & Zhao, 2005) suggest due to the sensitive nature of drug use, people may be unwilling to discuss their feelings and thoughts surrounding drug use. Similarly, within the GCC fear of social stigma also discourages families from revealing and discussing family member's drug problems (AlBuhairian et al., 2012), adding to the lack of communication regarding the risks of drug abuse. Social stigma also hinders data collection (studies) on the prevalence and behaviors associated with drug abuse within the GCC area (Al Harthi & Al Adawi, 2002). Given that drug abuse and addictive behaviors are stigmatizing in the GCC area, they tend to be concealed by individuals involved (Hafeiz, 1995), which may have an effect on the rates of substance abuse and understanding determinants of behavioral intention to engage in substance abuse among the GCC societies. A survey design methodology with anonymous participants, such as proposed in the current study, might be beneficial to understanding the magnitude of drug use and abuse with the GCC context.

In the context of the GCC countries, including Saudi Arabia, there are strong religious normative beliefs against alcohol consumption and marijuana/hashish use (Al Marri & Oei, 2009). Islamic religious scholars have come to a consensus that drugs are to be forbidden due to the harms they cause the body. Since the Koran prohibits the use of

any intoxicant that harms the body, individuals may approach the topic of drugs from an Islamic perspective. However, AlBuhairian et al. (2012) argue that within the Saudi society "substance use is considered taboo," many therefore "deny the possibility of adolescents actually engaging in such acts" (p. S42). Since the GCC countries have similar cultural and religious norms as Saudi Arabia, one can assume that for the GCC region, the underlying societal taboo against substance abuse (which therefore means drug use is not a problem since assumable people would not violate this taboo) has led to a reticence among society to recognize the possibility and actual prevalence of adolescents engaging in drug abuse, making prevention efforts difficult to enact and support.

There are at least four justifications for the current study. First, there is much debate regarding causes and predictors of drug use within the GCC area. Additional research is needed in order to better understand determinants of substance abuse in order to develop effective interventions. Second, there is limited data on the prevalence of hashish or marijuana use among young adults in the GCC area. Theory-driven research is needed to better understand the most salient predictors of marijuana use, specifically among non-incarcerated and non-treatment seeking young adults. The current study employs an exploratory cross-sectional survey research design using valid and reliable measures to collect data needed to test a predictive model of behavior intentions as defined in the theory of planned behavior. This is the first attempt from a communication perspective to use a theoretically grounded approach to better understand predictors of marijuana use within the Arabian Gulf Region (GCC). We see this as a first step in the process of identifying predictors that can be used to develop effective campaigns and

interventions to prevent marijuana use in the GCC. Taken together, the goal of this thesis is to use the theory of planned behavior to clarify and better understand predictors of intentions to use marijuana in the context of the six GCC countries.

This chapter presented the need for theoretically-driven research to better understand predictors of behavioral intention for marijuana use in the GCC countries. The following chapter will present behavioral theories focusing specifically on the applicability of the theory of planned behavior, predictors of drug use, and evidence based effective anti-drug intervention and prevention campaigns.

Chapter Two: Literature Review

The following chapter provides an overview of (a) behavioral theories; theory of planned behavior (b) attitudes, (c) perceived norms, (d) self-efficacy, (e) knowledge, (f) sensation seeking, and (g) effective interventions and preventions. This chapter concludes with the hypotheses and a research question that will be tested.

Extensive research has examined predictors of drug abuse and misuse and successful intervention strategies to improve prevention and education in the U.S and European contexts. Behavioral theories provide important tools to help identify what messages are appropriate to use in an intervention, the goal of the intervention and the targeted populations (Fishbein & Cappella, 2006). In the following review of the literature the importance of using behavioral theories to develop campaigns will be discussed. After describing the importance of theory in developing campaigns, which includes the theoretical framework used to guide this study, evidence of effective intervention and prevention campaigns within the U.S. and European contexts will be presented.

Importance of theory for campaign development

In order to use a behavioral change model, one must first identify the targeted behavior, as well as understand the action, the targeted population, and the context of the behavior (Fishbein & Cappella, 2006). Using theory to understand why some members of a population engage in a behavior, whereas others don't, can be done once attitudes, norms, self-efficacy, intentions, and the behavior have been identified (Fishbein & Cappella, 2006).

Influences of behavior differ in different cultures. For example, "behavior that is attitudinally driven in one population or culture may be normatively driven in another" (Fishbein & Yzer, 2003, p. 167). Prior to developing interventions to change a behavior, determinants of the intention must be examined first (Fishbein & Yzer, 2003). The degree to which each determinant drives intention should also be examined (Fishbein & Yzer, 2003). Yzer (2012) suggests, "the better we understand the variables that guide health behavior in a particular population, the better able we are to design interventions to change the behavior" (p. 27). More importantly, understanding the strongest predictor of behavioral intention to engage in risky behavior, such as drug use is crucial before developing intervention and prevention.

It is important to "understand the behavior from the perspective of the population under consideration" (Fishbein & Yzer, 2003, p. 168). Intervention and campaign developers need to understand the targeted behavior, knowledge regarding the behavior, attitudes, normative beliefs, and efficacy beliefs about the behavior, all which should be done through examining the community in which the intervention or campaign will be implemented.

Theory of Planned Behavior

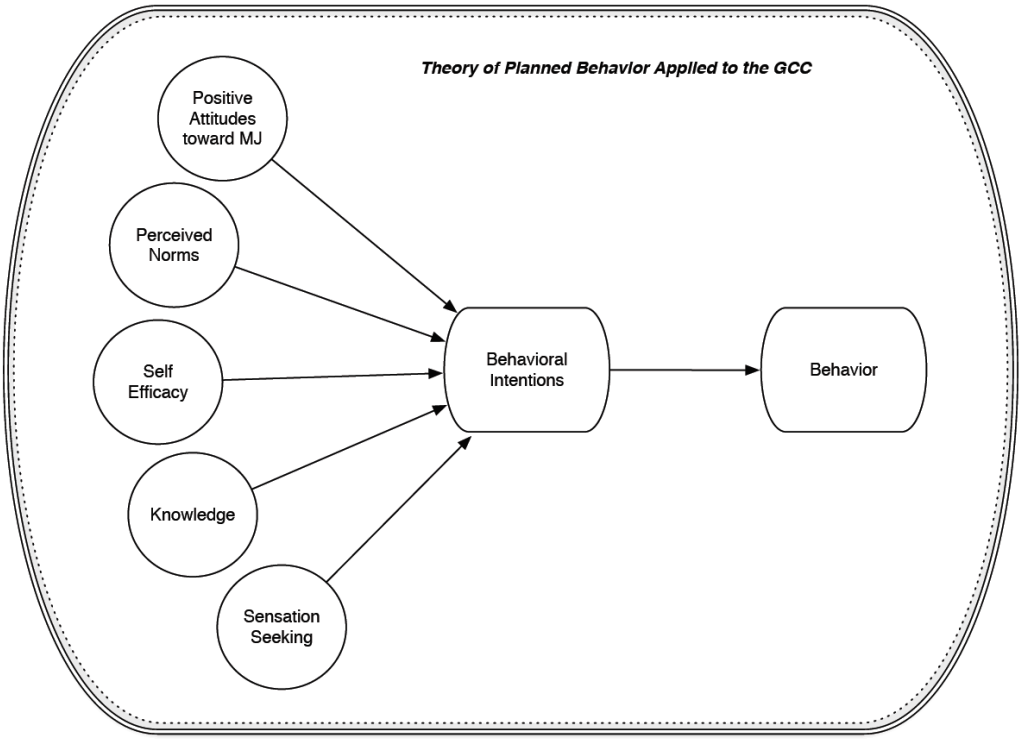
The theory of planned behavior (TPB) suggests an individual's attitude, subjective norms, and self-efficacy predict behavioral intentions, and drug abuse behavior (Ajzen, 1991). Research using the TPB model has examined predictors of drugs use, and the effectiveness of intervention strategies and education.

The TPB is useful in identifying which variables are more likely to determine a behavior in a given population (Ajzen, 1991). Once these variables are identified they

are used to create messages to improve healthy behavior change. Using the theory to identify predictors of intention to use drugs will help develop interventions to maximize the effectives of health messages in a targeted population.

According to TPB, a person's intentions, skills and abilities to perform a behavior, as well as environmental constraints, predict the likelihood of a behavior to occur (Ajzen, 1991). The TPB suggests there are three determinants of behavioral intention: attitude toward the behavior, perceived norms in relation to performing of the behavior, and self-efficacy towards the behavior. Knowledge and sensation seeking (Zuckerman, 1979) as individual differences may also predict behavioral intentions. Research within the U.S. context suggests a negative relationship between knowledge and behavioral intentions, and a positive relationship between sensation seeking and behavioral intentions (Ramirez et al., 2004; Palmgreen at el., 2007). It is important to understand the most salient predictors of behavioral intentions in order for intervention developers to target variables that influence behaviors such as marijuana or hashish. Thus, Figure 2.1 presents the modified version of TPB, which includes knowledge and sensation seeking as individual difference variables that will be tested in the current study.

Figure 2.1 Modified Theory of Planned Behavior (TPB) Applied to the GCC



The modified theory is based on the principle that an intervention should be designed once determinant of the intention to perform, or not to perform, and a targeted behavior have been identified. Once these determinants are identified, the intervention messages can address the targeted behavior in more detail: "The more specific a behavior is defined in intervention messages, the more likely it is that behavioral recommendations are interpreted as intended" (Yzer, 2012, p. 28). Self-efficacy and beliefs about the behavior must also be understood in order to develop interventions and campaigns that will build self-efficacy and change beliefs about drug use (Yzer, 2012).

Given that the theory of planned behavior is important in understanding predictors of behavioral intention for substance abuse, the follow review of each of the variables (e.g. attitudes, perceived norms, self-efficacy, knowledge, sensation seeking) will be

discussed to demonstrate the relationships of each variable to behavior intentions, and engagement in drug use.

Attitudes and Intentions

Several theories have been used to explain young adults' engagement in drug use. More specifically, the theory of planned behavior suggests that attitudes, along with other variables, predict intention to engage in behaviors such as marijuana or hashish use. An attitude is the way an individual feels about or evaluates a behavior, which could be positive or negative (Ajzen & Madden, 1986).

Attitudes are developed from beliefs about the outcomes of performing a behavior (Yzer, 2012). For example, if one feels the outcome of a behavior will be positive, they may also have a positive attitude about the behavior. Depending on the targeted group, attitudes may also have an effect on decision-making skills (Stephens et al., 2009). Several studies on substance abuse have demonstrated the importance of changing one's attitudes through interventions and prevention campaigns, as attitudes predict intention to use drugs.

Understanding individuals' attitudes towards substance abuse is important, since attitudes are strongly related to intention to use or try marijuana (Zhao et al., 2006). Individuals' intentions are derived from the attitudes one holds towards a given thing (Stephenson, Quick, Atkinson & Tschida, 2005) stressing the importance of understanding the targeted populations' attitudes in order to create campaign that will effect attitudes and change behavioral intentions to engage in substance abuse.

Attitudes are also affected and mediated by past behaviors and drive intention to perform a behavior (Ouellette & Wood, 1998). However, intentions vary depending on if

they are attitudinally driven of normatively driven. A study on young mothers' intentions to use marijuana found that attitudes towards marijuana acted as a mediator between past use and emotional distress, and intention to use marijuana (Morrison et al., 2010). Morrison et al. (2010) found that attitudes were the most significant predictor of intention to use marijuana among young mothers. Knowing if attitudes are significant predictors of behavioral intentions among different demographics or cultures, such as young adults from the GCC countries, will help campaign developers create more effective interventions and preventions.

Intention to engage in marijuana use can be altered through targeting the individual's attitude towards the substance. Evaluation of a universal, school-based substance abuse prevention program found intentions, beliefs about peers use and attitudes had a direct effect on marijuana use (Stephens et al., 2009). Chen and Lindsey's (2001) study found that fourth graders who have a negative attitude towards smoking tobacco were less likely to engage in tobacco use than their peers who evaluated tobacco positively. The results also suggest a positive relationship between behavior and attitudes towards substances.

Engaging in marijuana use is influenced by one's intention, which in turn is influenced by one's attitudes and normative beliefs (Stephens et al., 2009). Positive attitude towards a behavior are associated with higher levels of intention to perform the behavior. Sayeed, Fishbein, Hornik, Cappella and Kirkland Ahern (2005) found that young respondents' attitudes towards marijuana use were a strong predictor of intention to use for both non-user and past users. Depending upon the demographics and the characteristics of the targeted population, interventions might need to focus on youth

attitudes. In collectivistic cultures normative beliefs may have a more profound influence on intention than attitudes, further supporting the importance of examining determinants of behavioral intention within the targeted populations.

Perceived norms

Perceived norms are also considered a predictor for intentions to engage in risky behaviors such as substance abuse. A perceived norm is "the social pressure one expects regarding performing the behavior" (Yzer, 2012, p. 24), and the perception of what others think they should, or should not do, regarding the behavior. An individual's perceived norm develops from their belief about the acceptability of a behavior within their social network, and is influenced by peers engaging in said behavior (Yzer, 2012). When adolescents perceive risky behavior as exciting, they may ignore or underestimate the consequences of that behavior (Dong, 2005), leading to increased intentions to engage in drug abuse behaviors.

Perception of peer adolescents' engagement in substance abuse may also affect young adults' perceived norms and intentions to engage in drug use. Adolescents' perception of peer engaging in substance abuse is often overestimated (Flay, 2000), as will be discussed. Given that perception of drug use as being the norm increases adolescents' intentions to engage in drug use, an overestimation of peer engagement in drug use may influence behavioral intention to use substances. Most anti-drug programs recognize peer influences on individuals' decision-making and behavior (Kelly, 1995). Perception of peer drug use and parents' drug use may also influence adolescents drug use behavior, however research suggests peers may have a greater influence on adolescent's substance abuse (Barnea, Teichman, & Rahav,1992). Understanding the

influences of young adults' perceived norms and the related effects on intention to abuse substances will allow for more effective campaigns designed to influence the populations' perceived norms.

Individuals are more likely to engage in a behavior such as marijuana use if they believe influential peers or other members of their social networks approve of the behavior. Peer beliefs, social pressure and the intention to use marijuana are correlated (Zhao et al., 2006). Fishbein and Yzer (2003) suggest that the more individuals believe important people think they should or should not perform a behavior, the more likely the individual will abide by the important others' beliefs in performing the behavior. However, when adolescents are "made aware of the fact that peer pressure is often overestimated" they tend to focus more on the approval and disapproval of authority figures (Zhao et al., 2006, p. 195). Family members can aid in healthy socialization and modification of adolescents by reinforcing positive or negative behavior, developing expectations, setting behavioral norms and modeling behaviors (Austin, 1995). Family attitudes also affect children's behaviors and the development of their values and beliefs (Dong, 2005). It is important to understand how young adults among the GCC societies perceive normative influences encouraging drug use behavior so that campaign messages that shed light on the prevalence of drug use among peers with the GCC countries can be appropriately constructed.

Successful intervention strategies should send messages that convey abstaining from marijuana use does not mean the adolescent is not "cool". Creating campaigns that demonstrate drug use is not the norm and is not "cool" could be a beneficial intervention strategy (Zhao et al., 2006). However, social influences and peer groups of the targeted

population need to be understood in order to utilize them in behavior change (Kelly, 1995). Adolescents who are unable to say no to the social pressure of engaging in drug use might be at a higher risk of engaging in substance abuse. In order to develop campaigns that target the most salient predictor of substance abuse, attitudes, perceived norms, and self-efficacy of the targeted population need to be better understood.

Self-efficacy

Along with attitudes towards substance abuse and perceived norms, self-efficacy is also a predictor for behavioral intentions to engage in drug abuse. Self-efficacy and attitudes are both associated with intentions to use marijuana (Zhao et al., 2006). Self-efficacy is "the extent to which a person feels capable of effectively performing the behavior" (Yzer, 2012, p. 24). Self-efficacy comes from the perception one has of their capability to perform the behavior with different challenges and circumstances (Yzer, 2012). Individuals who have negative attitudes towards drugs may not have the skills or the efficacy to say no to drugs in certain situation, understanding the targeted populations self-efficacy is important in developing prevention campaigns.

Discussing previous events involving risky behavior and consequences for future engagement can contribute to an adolescent's self-efficacy – specifically if the risks involved are understood. Perception of the risk involved in performing a behavior influences the likelihood of the adolescent engaging in risky behavior (Dong, 2005). Understanding the risk involved also contributes to individuals' perception of their self-efficacy (Allahverdipour, Bazargan, Farhadinasab, Hidarina, & Bashirian, 2009). Research suggests "seeing a friend or family member abusing a drug or developing AIDS-related illnesses, for example, can make an individual feel at risk, even if an individual's own prevention skills are good" (Austin, 1995, p. 167). Family based

interventions might be beneficial in targeting adolescent's self-efficacy. Austin (1995) found family communication affects adolescents' self-efficacy and perception of risk. Witnessing a family member engage in drug use and seeing the consequences increases an individual's perception of being at risk, which also affects their level of self-efficacy. Since drug use is a taboo topic within the GCC committees and drug use behaviors are concealed and rarely, if ever discussed, it is imperative to understand efficacy beliefs of young adults from the Arabian Gulf region in order to develop interventions and preventions that might target their ability to decline drug use initiations.

Individuals are more likely to engage in drug use when in situations in which they feel unable to refuse drugs. Interventions can be successful if they provide life skill training that improves the individual's self-control (Allahverdipour et al., 2009). If the targeted populations' self efficacy is low then interventions need to provide information to teach individuals how to say no to drugs. Campaigns that address the risks involved in engaging in drug use may also need to provide training on the skills necessary for young adults to be able to say no to drugs in various situations. However, targeting life skills alone may not be sufficient to changing drug use behavior. Indeed, knowledge about the consequences and the risks involved in drug use may aid in changing young adults' behavioral intentions to engage in drug use. In order to create effective campaigns that address individuals' life skills, the targeted populations' self-efficacy and knowledge regarding drugs need to be more clearly understood.

Knowledge

Knowledge about substance is vital as it may influence behavioral intentions to engage in drug abuse. An extension to the theory of planned behavior suggests that

knowledge has an indirect effect on intention to engage in substance abuse. Knowledge is "the extent to which the information people have is accurate" (Ajzen, Joyce, Sheikh, & Cote, 2011, p. 102). In addition to knowledge, an individual must have the necessary skills to perform the behavior. Having knowledge alone is not sufficient enough for behavior change to happen; the effects from knowledge can be small and are mediated by behavior skills. When participants are asked yes or no questions, they typically guess the answer. This does not mean they actually have the right answer. In fact, research suggests that it is more likely that their response is much more consistent with their attitudes (Ajzen et al., 2011). It is essential to understand the influence of strength of knowledge on behavioral intention and examine the effects of knowledge on intention as mediated by attitudes *prior to* developing intervention and prevention campaigns.

Adolescents' knowledge is influenced by many different factors. Exposure to pro-drug media and peer pressure are key factors in risky behavior (Griffin, Samuolis & William, 2011) and could be a source of gaining knowledge. Previous research found media to be the main source of information regarding drugs among high school students in Canada (Fejer, Smart, Whitehead, Laforest, 1971). However, Fejer et al. (1971) found only nondrug users turned to media for information, whereas individuals who already used drugs relied more on their own experiences and friends for information. Individuals may look to themselves for self-efficacy and to peers for social norms. Adolescents who did not use drugs relied more heavily on, and are influenced by, mass media sources.

Although mass media contributes to informing adolescents about drugs and may provide knowledge, drug addicts may need different sources of information in order to influence their addictive behavior. A study on Israeli adolescents found that students who

engaged in drug use actually had higher knowledge of drug use compared to their peers (Brook, Feigin, Sherer, & Geva, 2001). Identifying level of knowledge of the target group allows campaign developers to create anti-drug messages that cater to the targeted group (Kelly, 1995). Campaign developers should also find more beneficial sources to inform and influence adolescents' drug use. Understanding the level of knowledge and appropriate medium to employ allows campaign developers to also identify the medium that will be most effective for the targeted group (Kelly, 1995).

Increasing drug knowledge through school curriculum can be a great drug prevention method. Fourth and fifth graders drug curriculum was associated with change in knowledge (Holtz & Twombly, 2007). The goal of the curriculum was to increase awareness and build knowledge of the risks involved in drug use, in order to affect attitudes and prevent drug abuse. Behavioral theories suggest that attitude and behavior change happen through knowledge attainment (Ajzen, 1991). However, due to the curriculum being part of science class, prediction of knowledge gain was expected for students who had positive attitudes towards science.

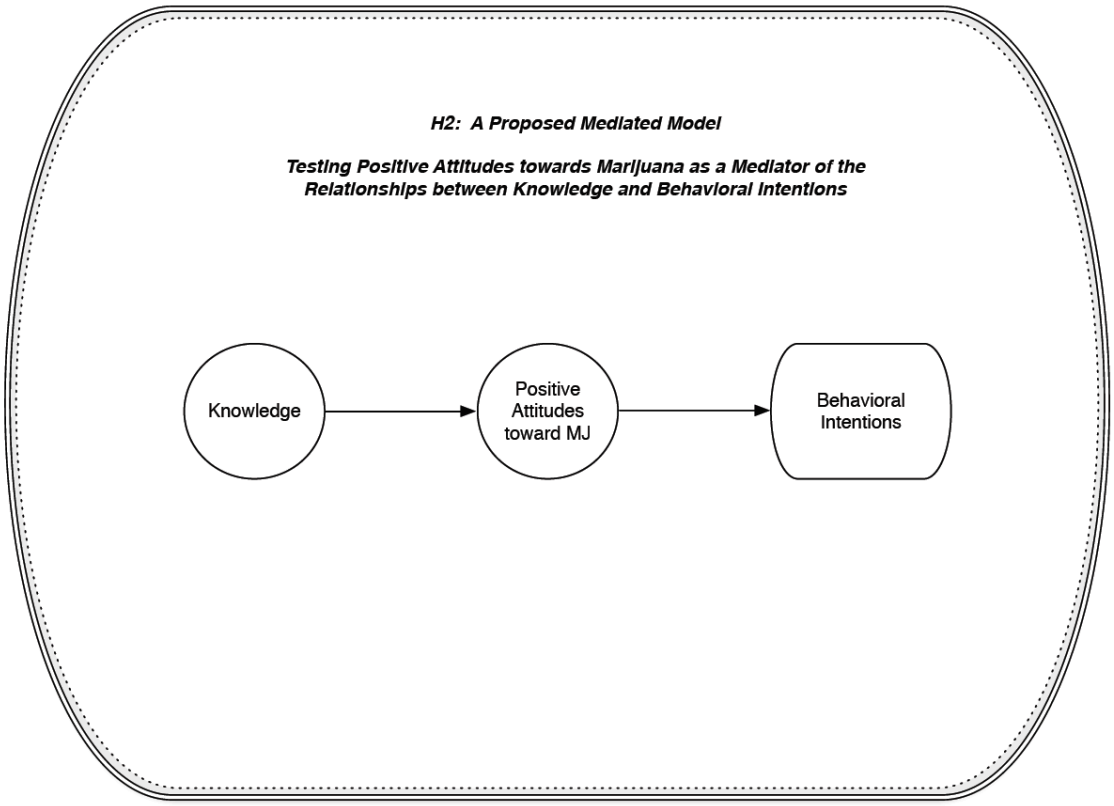
Skill-focused, school-based intervention programs were most effective in reducing drug use compared to those that were affective-focused and knowledge-focused (Faggiano et al., 2008). Skill-focused interventions improve drug knowledge, self-esteem, and resistance of peer pressure. Although school-based prevention programs improved knowledge, there was not a significant correlation between gaining knowledge and change in substance abuse behavior (Kerr et al., 2013). Given previous research suggesting frequency and length of exposure being associated with successful intervention, the non-significant result of behavior change might be due to limited

exposure time to the intervention (Kerr et al., 2013). Previous literature suggests that interventions should address peer norms, prevalence of substance abuse, perceived risks and consequences, as well as life and decision making skills (Kelly, 1995; Dong, 2005). However, knowledge is still necessary for attitude change and behavior change, since greater knowledge is associated with healthier behavior (Kerr et al., 2013).

Increasing adolescents' knowledge of drug consequences has also been associated with lower levels of substance abuse among respondents comprised of several cultural backgrounds (Ramirez et al., 2004). Although knowledge alone may only have a slight effect on behavior change, it is crucial for drug prevention and should be considered in drug intervention programs. Resisting peer pressure and developing the skills needed to change anti-drug norms can be done through increasing adolescent's knowledge (Faggiano et al., 2008).

Substance knowledge is also associated with attitudes towards substance abuse. Attitudes towards drugs may be affected by the knowledge to which one is exposed (Barnea, Teichman, & Rahav,1992), stressing the importance of examining the potential mediated relationship between knowledge and attitudes regarding abuse drug (see Figure 2.2). Given that knowledge alone may not have an impact on behavioral intention and is often times mediated by attitudes, the current study proposes a mediation model. Knowledge's impact on behavioral intention is mediated by attitudes.

Figure 2.2 Proposed Mediated Model for Impact of Knowledge on Behavioral Intentions as Mediated by Positive Attitudes Towards Marijuana Use



According to Yzer (2012) intention cannot predict behavior if the person does not have the necessary skills and resources to follow through with the behavior, emphasizing the importance of knowledge, as well as self-efficacy. Even if a person has formed an intention, without the necessary skills and resources, the individual may not act out the behavior intended. (Figure 2.2)

Sensation Seeking

Sensation seeking level is an important predictor of drug abuse. Previous research suggests that personality traits, such as sensation seeking, are associated with drug use (Tang, Wong, & Schwarzer, 1996). Sensation seeking is an individual's ‘‘need for varied,

novel, and complex sensations and experiences and the willingness to take physical and social risks for the sake of such experiences'' (Zuckerman, 1979, p. 10). High sensation seekers are more likely to experiment and begin using drugs earlier than low sensation seekers (Stephenson et al., 1999). High sensation seekers tend to seek thrilling experiences to satisfy their need for stimulation (Stephenson & Helme, 2006). Sensation seekers tend to turn to substance abuse to fulfill the need for stimulation and sensation. High sensations seekers also tend to use a variety of drugs more often.

The need for novelty makes sensation seeking an important variable to consider when designing prevention campaigns (Stephenson et al., 1999). In order to target high sensation seekers, the messages in a campaign need to have high sensation value (Palmgreen et al., 2007). Sensation-seeking targeting campaigns create high sensation values to target high sensation seekers, using features that provoke sensory, affective and arousal responses in order to deliver the consequences of drug use (Stephenson et al., 2002). Such campaigns have a positive effect on high sensation seekers and more likely to decrease marijuana use over a 30-day period (Stephenson et al., 2002).

Sensation seeking is positively related to marijuana use. High sensation seeking is also associated with positive attitudes and intention towards marijuana (Stephenson & Helme 2006). Although traditional preventions based on the theory of planned behavior are considered effective tools in drug prevention, sensations seekers might see the risk conveyed in the prevention program as favorable and still engage in the risky behavior (Rayna & Farley, 2006). A review of the effects of the Office of National Drug Control Policy's Marijuana initiative campaign targeting high sensation seeking adolescents found girls who used marijuana regularly had higher levels of sensation seeking

(Palmgreen et al., 2007). The campaign used more graphic and stimulating messages. However, the findings may not be applied or generalized to all communities (Palmgreen et al., 2007). The targeted population sensation seeking levels needs to be examined prior to developing intervention campaigns, in order to understand if campaigns should target high sensation seekers.

Given the evidence provided in the literature review on the importance of understanding determinants of substance abuse and the importance of identifying the most salient predictors for intention to use drugs, the follow review of interventions will discuss the effectiveness of substance abuse interventions and prevention campaigns.

Applicability of Western Evidence based interventions for the GCC

Drug interventions using anti-drug media messages are more effective when presented in combination with peer advocacy, community-based or classroom educational programs (Longshore, Ghosh-Dastidar & Ellickson, 2006). Adolescents who received a combination of curriculum and anti-drug media interventions were significantly less likely to engage in drug use (Longshore et al., 2006). However, in order to create effective ant-drug interventions or educational program for a targeted population such as the GCC, behaviors associated with drug use need to be better understood.

Youth drug prevention programs within the U.S. have also become more effective due to a change from being informative to focusing on social skills and changing normative beliefs among the youth, family and the community (Flay, 2000). Scheier, Grenard and Holtz (2011) found that the "Above the influence" anti-drug campaign was more successful than the previous campaign "My Anti-Drug" in decreasing drug abuse. The effectiveness of the campaign is due to addressing the adolescent's autonomy rather

than focusing on the risks involved in drug use. Campaigns that address substance abuse risks may lack effectiveness because most teens that are sensitive to risk messages are risk averse and less likely to engage in drug use (Scheier et al., 2011), stressing the importance of understanding the targeted audience's sensation seeking levels and knowledge regarding drug abuse.

Understanding the effectiveness of intervention and prevention campaigns once they are developed and presented to the targeted population is equally essential. Interventions that aim to increase knowledge and awareness among drug users may not always be effective at increasing knowledge. An evaluation of a heroin overdose prevention campaign (Horyniak et al, 2010) found injecting drug users "have knowledge of and strategies for risk reduction that extend beyond the scope of the campaign's content" (p. 9). Follow up interviews with the participants however, indicated that the campaign raised awareness and promoted discussion regarding heroin overdose. However, Horyniak et al., (2010) suggest that knowledge and increased awareness does not necessarily lead to behavior change, but may have an indirect effect on substance abuse behavior. Given that knowledge has been linked to attitudes and self-efficacy, once the targeted populations' knowledge, self-efficacy and attitudes are understood, effective campaigns may be developed to target determinants of behavioral intentions in hopes of changing behaviors such as engaging in drug use and abuse.

It is important to consider the type of messages and visual scenes in drug interventions because some may actually have a negative effect. Anti-marijuana advertisements featuring marijuana-smoking scenes may have a negative effect because high-risk adolescents are more likely to evaluate smoking marijuana as being positive

(Kang, Cappella & Fishbein, 2009). Smoking scenes can ignite positive attitudes towards marijuana since high-risk adolescents also tend to initially or have already formed positive attitudes towards marijuana (Kang et al., 2009). These findings stress the importance of understanding adolescent's sensation seeking levels, attitudes and intention in relation to drug use and abuse before developing anti-drug campaigns.

Less research is available in the Middle Eastern context, particularly in the GCC countries, where cultural norms and religious ruling influence the communication patterns with the society (AlBuhairan et al., 2012). Research in the GCC region has recognized an existence of the issue with drug abuse, and has identified types of drugs commonly used. However, little is known regarding the predictors of drug use or the effectiveness of Western intervention and education messages. While anti-drug campaigns and interventions are theory-driven within the U.S. and European contexts, little is known regarding the methods used to develop intervention and campaigns within the Arabian Gulf region.

In addition to cultural norms, there are many predictors of drug use and misuse. The theory of planned behavior suggests that environmental factors, individual background, and other individual differences are some of the variables that may affect drug use and misuse (Ajzen, 1991). However, in order to understand predictors of intention to use or abuse drugs, it is important to understand the targeted group's attitudes, self-efficacy, perceived norms, knowledge and sensation seeking level. These determinants will allow intervention and campaign developers in the Arabian Gulf region to develop messages that will address individual knowledge, beliefs, and behaviors concerning drug use.

Taken together, the evidence provided in the current literature reviews points to the importance of understanding substance use within the context of the targeted population, sensation seeking levels, as well as the constructs outlined in the theory of planned behavior (e.g. knowledge regarding drug use, attitudes, perceived norms and self-efficacy, intention) in order to predict the most salient determinant(s) of intention to abuse drugs (i.e., hashish/marijuana) in the Arabian gulf region (GCC).

For the purposes of this study, the theory of planned behavior was adopted to examine young adults from the Arabian Gulf regions' attitudes, perceived norms, self-efficacy towards drugs, knowledge about drugs, sensation seeking levels and intention to abuse drugs through participant survey.

The theory of planned behavior suggests several determinants of behavioral intentions to abuse substances. However, given that the literature previously reviewed (Stephens et al., 2009, Morrison et al., 2010, Sayeed et al., 2005) demonstrates attitudes are a stronger predictor of drug use among some populations, the first research hypothesis attempts to replicate previous results in the GCC context.

H_1. Positive attitudes towards marijuana will be a stronger predictor of intention to use marijuana than efficacy, perceived norms.

In addition, the literature review demonstrates that knowledge and personality traits such as sensation seeking might also have an impact on attitudes towards substance abuse and be associated with intention to use and abuse drugs. Thus, the resulting research question:

RQ_1. What impact does knowledge and sensation seeking, as individual difference variables, have on the ability of the theory of planned behavior to predict behavioral intentions to use marijuana?

Because literature previously reviewed has demonstrated a clear impact of knowledge on behavioral intentions only when mediated by attitude (Ajzen et al., 2011, kerr et al., 2013) the second research hypothesis proposes the following:

H_2. The impact of knowledge on behavioral intentions to use marijuana is mediated by attitude.

This chapter began with an overview of behavioral theories and the theory of planned behavior. Positive attitudes, perceived norms, self-efficacy, knowledge and sensation seeking were discussed and examined to shape a rationale for this study. Evidence based interventions and preventions in the contexts of both the U.S. and Europe were also presented. This chapter concluded with the hypotheses and a research question, which will be examined. Chapter three focuses on the Methods used to conduced this study.

Chapter Three: Methods

In order to test the hypotheses and answer the research questions presented in the previous chapter, a cross-sectional, self-administered survey was developed (see Appendix B). This chapter provides a description of the methods that were used. It includes information pertaining to: (a) subjects, (b) research design and (c) measures.

Subjects

Participants were recruited using a network sampling technique that included online social media forums (e.g., Twitter, Facebook) and various listservs (e.g., Center for English as a Second language, Oman Embassy's Cultural attaché). Participants had the option to complete the survey in English or in Arabic. Research in the GCC area suggests the initiation age for drug use among a United Arab Emirates sample was (18.75 +/- 4.6) and for a Saudi sample was (22.5+- 5.39) (Amir, 2001). The inclusion criteria for the current study required that participants were at least 18 years of age and were from of the six GCC countries.

For this study, 95 participants completed the survey. The sample consisted of 48 (50.5%) male participants and 47 (49.5%) female participants. The sample age range was 18 – 25, 6.3% were 18 (n = 6), 16.8% were 19 (n = 16), 18.9% were 20 (n = 18), 9.5% were 21 (n = 9), 6.3% were 22 (n = 6), 10.5% were 23 (n = 10), 9.5% were 24 (n = 9), 10.5% were 25 (n = 10), and 9.5% were older than 25 (n = 9).

With the sample, 44 (46.3%) participants were Omani, 36 (37.9%) participants were Saudi, 4 (4.2%) participants were Kuwaiti, 3 (3.2%) participants were Bahraini, 4 (4.2%) participants were Emirati, and 4 (4.2%) participants reported they either were Indian, Palestinian or Jordanian. All 95 participants reported some level of education, 12

(12.6%) participants had some high school education, 27 (28.4%), participants had a high school diploma or equivalent, 11(11.6%) participants had some college education, 9 (9.5%) participants had a 2-year college degree, 30 (31.6%) participants had a 4 year college degree, 4 (4.2%) participants had a masters degree, and 2 (2.1%) participants had a professional or terminal degree.

Research Design

An exploratory cross sectional online survey research design was developed to test the hypotheses and answer the research questions. An anonymous survey is the appropriate method for this study because of the sensitive nature of discussions concerning drug use, specifically among GCC societies. It allows for the largest number of participants to partake in the study with minimal time requirement and low cost. Both forced choice and open-ended survey questions were asked. (To view survey script, please see Appendix C).

To recruit participants, the following script was used (see Appendix A): *Young adults are needed to participate in the following research project: "Substance knowledge, norms, attitudes and behaviors in the Arabian Gulf region." The study is being conducted through the University of Kentucky's Department of Communication. The anonymous, online survey consists of approximately 50 questions regarding drug knowledge, beliefs and attitudes and will take approximately twenty minutes to complete. If you are between the ages of 18 and 25, from any of the Arabian Gulf countries, and are interested in participating, please click on the link below to begin the survey.* Interested participants were directed to a secure web address and asked to complete a confidential Internet survey created using Qualtrics online survey software. The study was approved

by the Department of Communication and the Institutional Review Board for the University Of Kentucky.

Subjects were asked to complete either the English or the Arabic version of the online survey. To ensure accurate translation of the English survey into Arabic, the survey was translated once, then back translated. The Arabic survey was compared to the English version to check for differences. A consultant from the Institutional Review Board also reviewed the Arabic survey to help minimized any confusions with word choices when translated. Data was collected between July 21st and October11th, 2013 from 95 participants who received the URL for the online survey. Participants provided informed consent to complete the online survey (see Appendix B).

Participation was voluntary. At the start of the survey participants' consent was obtained to use their answers in the data set. Participants were informed that the answers were completely anonymous and there was no cost for subjects to participate and no personal information (other than demographics) was asked, so both privacy and confidentiality were protected.

Measures

Positive Attitudes: Attitude is conceptually defined as the way an individual feels about a behavior, which could be positive or negative (Ajzen & Fishbein, 1980). Attitude is operationally defined and measured using a modified version of the attitude scale developed by Yzer et al. (2004). The original scale was developed to measure attitudes towards marijuana (e.g., "Using marijuana is: 'dumb-smart'). For the purpose of this study the scale was modified to include marijuana or hashish (See Appendix F). The final attitude scale included four seven-point semantic differential items measuring attitudes

towards regular drug use (e.g., "Using Marijuana or Hashish is: 'bad-good'). Construct validity has been established for the attitude instrument, and reliability ranges from .78 to .88 (Fishbein et al., 2003, Yzer et al., 2004). The Cronbach's alpha for the current study is .901 [$M = 2.86$, $SD = 1.911$].

Perceived norms: Perceived norms are conceptually defined as an individual's perception of what others thinks they should do regarding a behavior (Ajzen & Fishbein, 1980). Perceived norms are operationally defined and measured using Yzer et al. (2004) subjective norms questions for marijuana (see Appendix G). The original subjective norms single-item question was developed to measure young adults perceived approval or disapproval of important others (e.g., If you were to use marijuana nearly every month for the next 12 months, people who are important to you would: Strongly disapprove – Strongly approve). For the purposes of this study the question was modified to measure perceived norms regarding marijuana or hashish use (e.g., If you were to use marijuana or hashish people who are important to you would: Strongly disapprove – Strongly approve). The instrument is a one-item, 5-point, Likert-type question.

Self-efficacy: Self-efficacy is conceptually-defined as the "degree to which a person feels capable of effectively performing the behavior" (Yzer, 2012, p. 24). Self-efficacy is operationally defined and measured using Yzer et al. (2004) self-efficacy questionnaire examine young adults capability of saying "no" to marijuana (see Appendix H). The original questionnaire was developed to measure adolescents' self-efficacy regarding marijuana in 5 situations. For the purposes of this study, the questionnaire was modified for use with young adults. Thus, the original questionnaire asked about the likelihood of being able to say "no" in 5 situations (e.g., "you are on

school property and someone offers it."). The questionnaire was modified for use with young adults instead of adolescents (e.g., "you are on public property and someone offers it to you"). The instrument uses a 5-point, Likert-type scale ranging from (1) *not at all sure I can say no* to (5) *completely sure I can say no*. Reliability has been established for the instrument, with a high Cronbach's alpha of .92 (Yzer et al., 2004). The Cronbach's alpha for the current study is .941 [$M = 4.013$, $SD = 1.267$].

Knowledge: Knowledge is "the extent to which the information people have is accurate" (Ajzen, Joyce, Sheikh, & Cote, p. 102). Knowledge is operationally defined using Ramierz et al. (2004) knowledge questionnaire. To measure young adults' knowledge regarding drug use, the Ramirez et al. (2004) marijuana knowledge questionnaire was modified to measure marijuana (or hashish) knowledge (see Appendix D). The original scale is a 6-item true-false questionnaire developed to measure adolescent knowledge regarding the risks involved in using and abusing marijuana (e.g., "Smoking marijuana may: impair short term memory"). Validity was not reported in Ramirez et al. (2004) study. For the purpose of this study, the scale was modified to measure marijuana or hashish knowledge (e.g., "Smoking marijuana or hashish may lead to addiction"). The final scale was also modified to a 7-point semantic deferential scale (completely true – completely false) that included 6 questions regarding the risks involved in marijuana or hashish use. To measure knowledge level the correct answer was assigned as 1 and the incorrect answer was given a 0. After calculating the scores, greater numbers indicate increased knowledge levels [$M = 1.80$, $SD = .894$].

Sensation seeking: Sensation seeking is conceptually-defined as an individual's ''need for varied, novel, and complex sensations and experiences and the willingness to

take physical and social risks for the sake of such experiences'' (Zuckerman, 1979, p. 10). Sensation seeking is operationally-defined and measured using the Brief Sensation Seeking Scale (BSSS; Hoyle, Stephenson, Palmgreen, Pugzles Lorch & Donohew, 2002) (See Appendix C). The BSSS is an eight-item scale that measures adolescent sensation seeking level (e.g., "I like new and exciting experiences, even if I have to break the rules"). The instrument is a 5-point Likert-type scale ranging from (1) *strongly agree* to (5) *strongly disagree.* Construct validity has been established for the BSSS instrument, and reliability of cronbach alphas ranging from .74 to .82 (Hoyle et al., 2002; Sayeed, Fishbein, Hornik, Cappella & Ahern, 2005). For the current study, the Cronbach's alpha is .715 [$M = 3.49$, $SD = .664$].

Past drug use: To measure past drug use Sayeed et al.'s (2005) single item question was used to measure marijuana or hashish use (e.g., "Have you ever, even once, used marijuana or hashish?"). Participants who answered yes were then asked about the frequency of marijuana or hashish use (e.g., "How many times have you used marijuana or hashish in the last 30 days") (See Appendix C). Frequency was measured using open ended self-report information.

Intention. Intention is conceptually-defined as the motivation to move towards an act or behavior goal (Orbeil, Hodgldns & Sheeran, 1997). Intention is operationally-defined by asking participants how likely he or she will use marijuana or hashish using an adapted form of Yzer et al.'s, 2004 intention questionnaire. The questionnaire first asks about the likelihood of using marijuana or hashish in the next 12 months (e.g., "How likely are you to use Marijuana/Hash even once in the next 12 months"), followed by a question regarding the frequency of using marijuana thereafter (e.g., "How likely are you

to use Marijuana/Hash nearly every month for the next12 months") (see Appendix C). The instrument is a two-item, 4-point, Likert-type scale ranging from (1) *I definitely will not* (4) *I definitely will*. The Cronbach's alpha for the current study is .879.

Data Analysis Plan

A series of linear regressions are planned to test the hypotheses and the research question. Hypothesis one involves a test of the three predictor variables (e.g. positive attitudes, perceived norms, self-efficacy) on the criterion variable (behavioral intention to use marijuana).

Research question one involves a test of the five predictor variables (e.g. positive attitudes, perceived norms, self-efficacy, knowledge and sensation seeking) on the criterion variable (behavioral intention to use marijuana) to determine the impact of knowledge and sensation seeking on the efficacy of the theory of planned behavior to predict behavioral intention to use marijuana.

Finally, the second hypothesis involves a test of the mediation using Hayes (2013) PROCESS macro which "uses an ordinary least square or logistic regression-based path analytical framework for estimating direct and indirect effects on simple and multiple mediator models." The current study suggests the impact of young adults' knowledge on behavioral intentions will be mediated by attitudes.

The specific methods for collecting data, sample characteristics, the research design, and specific measures of each of theoretical construct have been detailed in this chapter. Chapter four will present the results of the data analysis.

Chapter Four: Results

The chapter includes the results of the TPB application to the Arabian Gulf Region generated from data collected through the web-based survey. A descriptive table (see Table 4.1) is provided below for each of the variables measured (e.g., positive attitudes toward marijuana use, perceived norms, self-efficacy, knowledge, and sensation seeking).

Table 4.1 Descriptive Table for Each of the Variables in the Modified TPB

	N	Min.	Max.	Mean	SD
Positive attitudes towards marijuana	**95**	**1.00**	**7.00**	**2.8658**	**1.91189**
Perceived norms	**93**	**1**	**6**	**1.69**	**1.151**
Self efficacy	**92**	**1.00**	**5.00**	**4.0130**	**1.26762**
MJ Knowledge	**95**	**.00**	**4.00**	**1.8000**	**.89443**
Sensation Seeking	**95**	**1.88**	**5.00**	**3.4934**	**.66404**

Results for the two hypotheses and one research question are provided below.

Hypothesis1: Positive Attitudes as Predictor of Intentions to Use Marijuana

To test the most overall model and to determine whether positive attitudes to use marijuana are the strongest predictors of marijuana use, a regression analysis was calculated.

It is common practice, prior to regression analysis, to examine the intercorrelations among all independent variables for multicollinearity issues (see Table 4.2). According to Meyers, Gamst, Guarino (2006) multicollinearity exists when bivariate correlations of .90 and higher exist between independent variables. The largest correlation (r = .506) is between self-efficacy and positive attitudes for marijuana use. Therefore, multicollinearity is not of concern in the current study.

Table 4.2 Correlation Matrix for Each of the TPB Variables

Correlations

		Positive Attitudes Toward MJ	Perceived Norms	Self Efficacy	Knowledge	Sensation Seeking
Perceived Norms	Pearson Correlation	.327				
	N	93				
Self Efficacy	Pearson Correlation	-.506	-.228			
	N	92	92			
Knowledge	Pearson Correlation	.026	.019	.014		
	N	95	93	92		
Sensation Seeking	Pearson Correlation	.202	.025	-.352	-.060	
	N	95	93	92	95	
Behavioral Intentions	Pearson Correlation	.500	.395	-.430	-.081	.254
	N	90	90	90	90	90

The first hypothesis examined the relationship between positive attitudes, perceived norms, and self-efficacy as predictors of behavioral intentions. The theory of planned behavior suggests that young adults' attitudes should be the most significant predictor for behavioral intentions to engage in marijuana use. A multiple regression analysis with one criterion variable (behavioral intentions) and three predictor variables (positive attitudes, perceived norms, and self-efficacy) was calculated.

Positive attitudes [$t = 3.008$, $p < .001$; $\beta = .309$], perceived norms [$t = 2.545$ $p < .01$; $\beta = .238$], and self-efficacy [$t = -1.913$, $p < .001$; $\beta = .196$]) were predictor variables on participant self-reported behavioral intentions to engage in marijuana use [F (3, 86) = 15.28, $p < .0001$; *Adjusted* $R^2 = .325$].

Table 4.3 Regression Model for TPB Applied to the GCC (Includes Only Significant Predictors)

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	**1.471**	**.386**		**3.813**	**.000**
	Postive attitudes towards marijuana	**.147**	**.048**	**.313**	**3.069**	**.003**
	Percieved norms	**.173**	**.070**	**.231**	**2.474**	**.015**
	Self efficacy	**-.167**	**.070**	**-.233**	**-2.374**	**.020**

Dependent Variable: Behavioral Intentions
Note: Adj. $R^2 = .325$

The analysis clearly demonstrates at least partial support for the first hypothesis.

Research Question 1: Marijuana Knowledge and Sensation Seeking as Predictor of Behavioral Intentions

The research question examined the impact of knowledge and sensation seeking on the ability of TPB to predict marijuana use among young adults. A multiple regression analysis with one criterion variable (behavioral intentions) and five predictor variables (positive attitudes, perceived norms, self-efficacy, knowledge and sensation seeking) was calculated.

Only three (positive attitudes, perceived norms, and self-efficacy), of the five predictor variables significantly contributed to the overall variance explained in participant self-reported behavioral intentions to engaging in marijuana use [F (4, 84) = 9.65, p< .0001; *Adjusted* R^2 = .327](see table 4.4).

Table 4.4 Regression Model for Modified TPB Applied to the GCC (Complete Model)

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	**1.057**	**.677**		**1.561**	**.122**
	Postive attitudes towards marijuana	**.145**	**.048**	**.309**	**3.008**	**.003**
	Percieved norms	**.179**	**.070**	**.238**	**2.545**	**.013**
	Self efficacy	**-.141**	**.074**	**-.196**	**-1.913**	**.059**
	Knowledge	**-.089**	**.085**	**-.091**	**-1.043**	**.300**
	Sensation Seeking	**.134**	**.131**	**.096**	**1.022**	**.310**

Dependent Variable: Behavioral Intentions
Note: Adj. R^2 = .327

The research question examined the impact of knowledge and sensation seeking on the ability of TPB to predict marijuana use among young adults. As evidenced in the analysis that knowledge [t = -1.043, p >.05; β = -.091] and sensation seeking [t = 1.022, p >.05; β =.096] were not a significant predictor of behavioral intention for marijuana

use [F (4, 84) = 9.65, p< .0001; *Adjusted* R^2 = .327] when analyzed with the other four predictors. However, when sensation seeking is treated as the single predictor [t = 2.461, p <.05; β =.254] of behavioral intentions, sensation seeking was significant, but, it accounted for less than 5% of the overall variance in behavioral intentions to use marijuana. [F (1, 88) = 6.058, p=.016; *Adjusted* R^2 = .054].

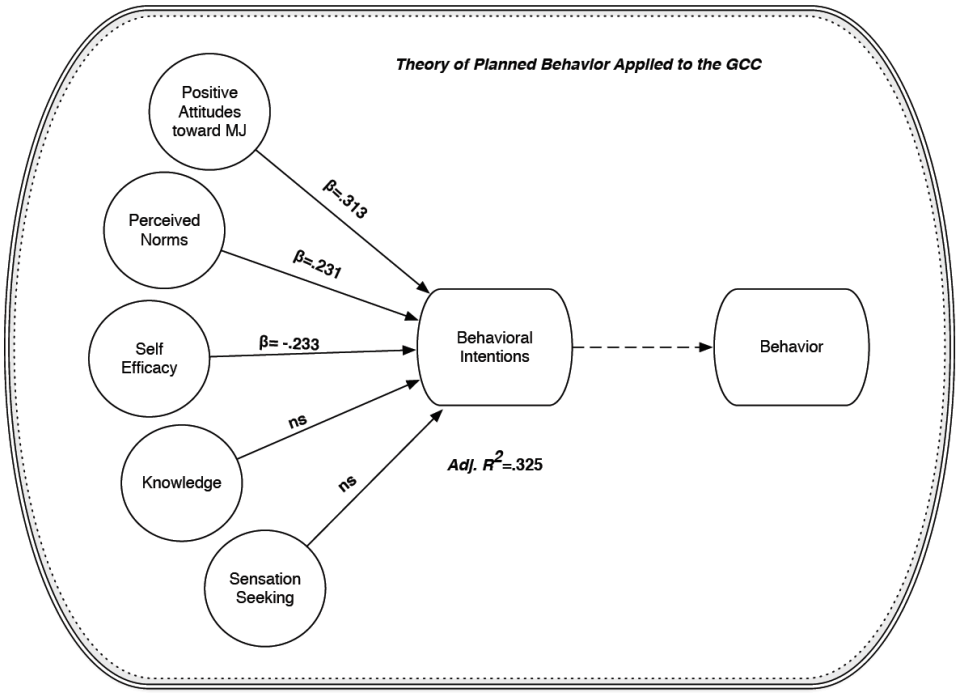
Table 4.5 Regression Model for Sensation Seeking on Behavioral Intentions

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	**.275**	**.503**		**.546**	**.586**
	Sensation Seeking	**.354**	**.144**	**.254**	**2.461**	**.016**

Dependent Variable: Behavioral Intentions
Note: Adj. R^2 = .054

The analysis clearly demonstrates the including knowledge and sensation seeking has no significant effect on the TPB ability to predict marijuana use. (see Figure 4.1 for graphical representation of the final model).

Figure 4.1 Revised Graphical Representation of Theory of Planned Behavior (TPB) Applied to the GCC



Hypothesis 2: Mediation Analysis of Positive Attitudes for Knowledge on Behavioral Intentions

The second hypothesis examines the relationship between knowledge and intention as mediated by positive attitudes. It was predicted that the impact of young adults' knowledge on behavioral intentions would be mediated through attitudes. The mediation model was tested using the SPSS PROCESS macro provided by Hayes (2013). The software conducts regression analyses to provide the magnitutde and signficance of the *a* (independent variable [IV] (knowledge) to mediator (positive attitudes), *b* (mediator (positive attitudes) to dependent variable (behavioral intentions), and *c* ((*total effect*) independent variable (knowledge) to dependent variable (behavioral intentions)),

as well as the *direct* effect c' (independent variable (knowledge) to the dependent variable (behavioral intentions) controlling for the mediator (positive attitudes) and the *indirect* effects *ab* (test of mediation). Results are provided in Table 4.6.

Table 4.6 Results of Mediation Model Examining Positive Attitudes as a Mediator of the Association Between Knowledge and Behavioral Intentions

		a Path		*b* Path		*c* Path		*c'* Path				
		Knowledge to positive attitudes		Positive attitudes to Behavioral intention		Knowledge to Behavioral Intention (total effect)		Knowledge to BI controlling for Positive Attitudes (direct effect)		*ab*(indirect effect)		
Independent variable	Mediator	*β*	*SE*	*β*	*SE*	*β*	*SE*	*β*	*SE*	*ab*	*SE*	95% CI
Knowledge	Full model					-0.1106	0.0902	-0.1106	0.0902	0.0311	0.0568	(-.0812 to .1555)
	Positive Attitudes	0.131	0.221 (ns)	0.238	0.0433* (p=,001)		(ns)		(ns)			

It is clear from the data that the second hypothesis is not supported. Indeed, knowledge is not mediated by positive attitudes toward marijuana to predict behavioral intentions.

Chapter Five: Discussion

Drug use among the Arabian Gulf countries is a growing issue. Although intervention and prevention campaigns have been implemented to curb marijuana use among the GCC countries, there exists a paucity of research on predictors of marijuana use. The main objective of this thesis examined the most salient predictor of marijuana use among young adults from the GCC area. A secondary objective of the current research was to understand the impact that knowledge and sensation seeking have on the ability of TPB to predict marijuana use. To our knowledge, this is the first study that explores predictors of marijuana use among the six GCC countries. Therefore, this thesis makes a significant contribution to the limited literature on predictors of behavioral intention for marijuana use among the six Arabian Gulf countries. In addition, this study also provides empirical evidence to the strongest predictor of behavioral intention to use marijuana among an Arabian population. Most importantly, given the need for reliable measures to understanding behaviors associated with drug use among the GCC countries, this study provides reliable measures for examining predictors of drug use in the context of the Arabian Gulf.

In this study, the theory of planned behavior (TPB) was presented and tested on two hypotheses and one research question generated to explore the most salient predictors of behavioral intentions, the impact of knowledge on behavioral intentions to use marijuana as mediated by attitudes towards marijuana, as well as the impact of knowledge and sensation seeking on the ability of TPB to predict behavioral intention for marijuana use. The following chapter provides an interpretation and analysis of the findings. Each of the hypotheses and the research question will be addressed in relation to

the theory of planned behavior. Furthermore, implications of the results are presented, as well as limitations of the current study, and suggestions for future research are discussed.

Implications

Although there is limited research on drug abuse in the GCC countries, "a review of the literature reveals no objective studies on knowledge, attitude and perception." (Al Harthi & Al Adawi, 2002, p. 5). From the current study we now know that positive attitudes toward marijuana are the strongest predictor for behavioral intention to engage in marijuana use. Intervention and prevention developers in the GCC countries can benefit from this study, as it is the first step in creating anti-drug campaigns. All three - predictors from the TPB (positive attitude, perceived norms and self-efficacy) were significantly related to behavioral intention for marijuana use. Taken together, positive attitudes, perceived norms and self-efficacy accounted for 32% of the variance for behavioral intention. However, knowledge and sensation seeking were not significant. Effective intervention and prevention campaigns should target attitudes along with perceived norms and self-efficacy to change behavioral intention in hopes to reduce young adults engagement in marijuana use. Given that previous campaigns in the GCC have not been theory driven and have been ineffective, without the current results campaigns targeting marijuana use may have continued to be ineffective – especially for interventions and preventions that focus on increasing knowledge and target high sensation seekers.

In the context of the Arabian Gulf, attitudes and norms may be a reflection of one's religiosity. The GCC countries have strong religious normative beliefs against alcohol consumption and marijuana/hashish use, therefore attitudes towards drugs are

related to their belief that it angers god (Al Marri & Oei, 2009). The current study asked about perceived norms of an important other, since marijuana is prohibited by Islamic religion and most young adults from the GCC countries are taught the Islamic religion as part of the school curriculum, the norm may be a reflection of their religious values. Since drug use in considered "Taboo" and most individuals deny the likelihood of peers or family members engaging in drug use, the culture values might dictated the perceived norms while having an impact on behavioral intention to engage in marijuana use.

The findings of this study yield further support for the TPB. According to Azjen (1991) attitudes, perceived norms and self-efficacy all predict behaviors intention. Although, sensation seeking and knowledge were not significant predictors, this study is a first step at understanding predictors for behavioral intentions to use marijuana. Practically, if health educators want to influence marijuana use behaviors.

Previous research in the U.S. context has established a relationship between knowledge and behavioral intention. However, for the current study, knowledge was not significantly associated with behavioral intention for marijuana use. An increase in marijuana knowledge had no effect on participants' behavioral intention to engage in marijuana use. Therefore, intervention and prevention campaigns that focus on marijuana knowledge among GCC societies may not be successful in decreasing behavioral intention. It is possible that knowledge was not a significant predictor for behavioral intention to use marijuana due the scale used in this study. What is known today about marijuana use is very different from 2002 when the scale for the current study was developed. Higher levels of knowledge from the current scale might not necessary mean individuals have higher knowledge or awareness of the risk involved in marijuana use.

Therefore, knowledge for the current sample was not significantly related to behavioral intention to engage in marijuana use.

Interestingly, although sensation seeking has been associated with behavioral intention for marijuana use among adolescents within the U.S., for the current study's GCC sample, sensation seeking was not a significant predictor of behavioral intention when analyzed with the TPB model. As a variable of individual differences, this might mean that regardless of whether young adults in the GCC were high sensation seekers, taken together along with positive attitudes, perceived norms and self-efficacy, the 5% variance of sensation seeking on behavioral intentions is already accounted for. Given that the GCC countries are considered collectivistic cultures, individual difference variables, such as sensation seeking, may not have as much of an influence on behavior intention as is among individualistic cultures. The participants in the current study may have focused more on their learned collectivistic tendencies which could have effected their behavioral intention to use marijuana.

The lack of sensation seeking significance maybe also be due to the fact that the Islamic religion prohibits the use of drugs, therefor, regardless if the individual feels the need to seek risky behavior to satisfy their need for stimulation, the thought that it may anger good may prohibit the behavioral intention. Therefore, high sensation seekers in this particular sample or population may not have the behavioral intention to use marijuana.

Research in the GCC has focused mainly on incarcerated or treatment-seeking individuals who have abused a combination of drugs. The current study gives a better understanding of the variables associated with behavioral intentions to engage in

marijuana use specifically. Ant-marijuana campaigns that are developed using the TPB for an American population may be useful in the GCC, now that there is a clearer understanding of significant predictors for behavioral intentions for marijuana use.

The current study adds to previous research by providing evidence that the TPB can be applicable in different cultures such as the GCC, as seen from hypothesis one. Positive attitudes, perceived norms and self-efficacy were significant predictors of behavioral intention to use marijuana in the GCC context. However, contrary to our prediction, sensation seeking and knowledge as individual differences did not have an impact on behavioral intentions for marijuana use.

Limitations

This study contains several limitations. As with any voluntary cross-sectional survey research, participants may have been biased by social desirability when answering the survey, causing an underestimation of behavioral intention to use marijuana, as well as being dishonest in reporting past use of marijuana. However, the findings of the current research remain valid as all participants in the sample would have underestimated (or under-reported) in a consistent manner (Fowler, 2009). Additionally, a review of studies (Amir, 2001) in the GCC context indicated that the initiation age for drug use among a UAE sample was (18.75 +/- 4.6) and for a Saudi sample was (22.5+- 5.39). Therefore, the current study collected data from participants who were between the ages of 18-25. However, the limited age range did not allow for a larger more diverse sample. The current study included 95 participants, the small sample size may not be representative of the general GCC population due to the self-selection bias.

Another limitation to this study is the sensitivity of the measures as they relate to the translation (and back-translation) of the survey from English to Arabic, and back again. Any language translation will involve problems related to the possibility of multiple, contradictory meanings. However careful our attempts to manage the translation of the survey, there are distinct possibilities that some confusion may have occurred. More serious limitations, however, were related to the operationalization of two of the measures included in the study: *knowledge* and *perceived norms*. In fact, the lack of statistical significance could have been due to the knowledge measure. To measure knowledge level the correct answer was assigned as 1 and the incorrect answer was given a 0. The scale was 7-point semantic deferential scale (completely true – completely false). After calculating the scores, greater numbers indicate increased knowledge. However, the knowledge scale was created in 2002 and what is known today about marijuana use may be very different. Higher levels of knowledge may not necessarily mean high levels of awareness regarding the risk of marijuana use.

In addition, the current study used a single-item question to measure perceived norms (Yzer et al., 2004). While the measure is consistent with other questions employed by TPB researchers (Ajzen & Madden, 1986), it may not have been sensitive enough to capture the multiple forms of influence (e.g., peers, siblings, or parents). A more appropriate measure might have been Fishbein et al. (2003) 6-item subjective norms scale to operationalize peer norms. However, since the single item remained significant in the regression model, it was adequate for the current study.

Another limitation of the current study is the measure of lifetime marijuana use. It was the original intent to measure previous use of marijuana, however, the data collected was non-numerical. Therefore frequency of use was not measurable.

Finally, although all participants were supposed to have the option to take the survey in English or Arabic, this was not the case for some participants. The distribution of the survey through one social media site only included the English version of the survey with the recruitment letter. Additionally, the sample was collected throw a convince network sample, therefore may reflect the cultural identity of the researcher's network. The participants may share similar attitudes, norms and self-efficacy beliefs. Thus having a larger more diverse sample from the six GCC countries the more potentially generalizable the results. Moreover, the majority of the sample was either from Saudi Arabia or Oman, thus limiting the external validity of the study.

Interestingly, the current study provides perplexing results about predictors of behavioral intention to use marijuana, specifically for sensation seeking and marijuana knowledge. Thus, many questions are raised for future research.

Future Directions

Given the limitations in the current study, there are many possible future directions for researchers. Future research should begin with a partial replication of this study. Further test using the theory of planned behavior with a larger, more diverse sample would be beneficial to ensure that the sample is representative of the targeted population. Future research might also include a longitudinal survey design instead of a cross-sectional design. Longitudinal studies allow for higher validity and can be used to check for reliability. In addition, collecting data over time will allow future researchers to

assess if behavioral intentions led to actual engagement in drug use. Future studies could also partially replicate the current study to examine other drug types. Another suggestion would be to replicate this study using the Fishbein et al. (2003) 6-item scale that measures subjective norms of several important others. Another suggestion would be to measure the differences in behavioral intention between the six GCC countries. Future research could include a larger sample of participants from each country and possibly compare the utility of TPB in predicting behavioral intention for each country. The current study did not compare behavioral intention between genders. Future research could examine differences between gender knowledge, attitudes and behavioral intentions.

Further test of the TPB model using different sampling procedures and a slightly more diverse sample could be beneficial. Although sensation seeking was not significant in the current study, there may be additional or different variables associated with the GCC culture that could be examined. There may also be other mediating variables such excessive free time and money. Future research must continue to examine determinants of behavioral intention within the GCC culture in order to better understand predictors of behavioral intention of marijuana use.

Although knowledge was not associated with behavioral intentions, source of drug-related information might be. The current study did not examine sources of information. Future research could examine peer influences and parental guidance effect on behavioral intention to engage in drug use. In doing so, future studies could apply the integrated model of behavior prediction (Yzer, 2012) to examine several other determinates of behavioral intention to use marijuana among the six GCC countries.

Next, research in the GCC countries is also needed to assess the effectiveness and influence of current approaches to drug education and prevention in the Arabian Gulf region, and to assess the need for improved communication programs to discourage drug use and abuse among young adults. A longitudinal study examining the effectiveness of interventions would be a great next step from this study. Since this study sheds lights on the most salient predictor of behavioral intention, a pilot study using campaigns that targeting attitudes, perceived norms and self-efficacy could be implemented and examined.

Finally, since drug use in considered taboo in the GGC countries and is socially-stigmatizing, applying different theories, such as communication privacy management, could help researchers to understand if concealment or tactics used in communication privacy management perpetuate drug use. Researchers in the GCC (Al-Harthi & Al-Adawi, 2002) suggest the gateway theory might be applicable to the GCC context. Using this theory to understand if marijuana leads to harder drug use such as cocaine or heroin in the GCC context will benefit campaign developers.

Conclusion

The main objective of this research study was to examine the theory of planned behavior related to marijuana use among individuals in the GCC. This thesis provides empirical evidence for the most salient determinant of marijuana use. It is evident that positive attitudes are the most significant predictors of behavioral intention to engage in marijuana use. One of the major issues in the GCC area is limited literature on drug use, as well as the effectiveness of intervention and prevention campaigns. The primary goal

of this thesis is to better understand predictors of drug use in order to develop more effective prevention and intervention campaigns.

In conclusion, the current study helps scholars better understand the application of TPB across different cultures, as well as determining the strongest predictor for behavioral intentions to engage in marijuana use within the context of the GCC. Therefore, campaign developers may be better able to create effective anti-marijuana campaigns to curb the rising use of drugs in the Arabian Gulf countries.

Appendix A

RECRUITMENT FORM

Young adults are needed to participate in the following research project: "Substance knowledge, norms, attitudes and behaviors in the Arabian Gulf region." The study is being conducted through the University of Kentucky's Department of Communication. The anonymous, online survey consists of approximately 50 questions regarding drug knowledge, norms and behavior, and will take approximately twenty minutes to complete. If you are between the ages of 18 and 25, from any of the Arabian Gulf countries, and are interested in participating, please click on the link below to begin the survey.

Appendix B

Consent to Participate in a Research Study

WHY ARE YOU BEING INVITED TO TAKE PART IN THIS RESEARCH?
You are being invited to take part in a research study about Substance Knowledge, attitudes, norms and behaviors. You are being invited to take part in this research study because you identify yourself as being from one of the Arabian Gulf countries, and are between the ages of 18 and 25 and. If you volunteer to take part in this study, you will be one of about one of about 150 people to do so Internationally.

WHO IS DOING THE STUDY?
The person in charge of this study is Nola Almageni, a graduate student at the University Of Kentucky Department Of Communication. She is being guided in this research by Dr. Derek Lane, Associate Professor. There may be other people on the research team assisting at different times during the study.

WHAT IS THE PURPOSE OF THIS STUDY?
By doing this study, we hope to learn predictors of drugs use among young adult within the Arabian Gulf region.

ARE THERE REASONS WHY YOU SHOULD NOT TAKE PART IN THIS STUDY?
You should not take part in this study if you are under the age of 18, above the age of 25, or not from the Arabian Gulf region.

WHERE IS THE STUDY GOING TO TAKE PLACE AND HOW LONG WILL IT LAST?
You can complete this study at any computer with Internet access. The study should only last a MAXIMUM of 30 minutes.

WHAT WILL YOU BE ASKED TO DO?
You are being asked to participate in a brief survey. First, you will be asked to complete this informed consent form and a brief demographic questionnaire, which will include information about things like your educational background and gender. Your name will not be required, and the demographic information will only be reported in cumulative form for descriptive purposes. You will then be asked to complete a questionnaire about Marijuana or Hashish and Khat, which will include things about your knowledge regarding the risks involved, your perception of norms and your ability to say no in veracious situations, as well as your attitudes and your intention to use Marijuana or Hashish.

WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS?
To the best of our knowledge, the things you will be doing have no more risk of harm than you would experience in everyday life.

WILL YOU BENEFIT FROM TAKING PART IN THIS STUDY?

You will not get any personal benefit from taking part in this study. However, completing this survey will give scholars a better understanding of drug knowledge, behavior, and predictions of drug use. Your willingness to take part, may, in the future, help society as a whole better understand this research topic.

DO YOU HAVE TO TAKE PART IN THE STUDY?
This study is completely voluntary. You may quit at any time.

IF YOU DON'T WANT TO TAKE PART IN THE STUDY, ARE THERE OTHER CHOICES?
If you do not want to be in the study, please just exit out of the survey.

WHAT WILL IT COST YOU TO PARTICIPATE?
There are no costs associated with taking part in the study.

WILL YOU RECEIVE ANY REWARDS FOR TAKING PART IN THIS STUDY?
You will not receive any rewards or payment for taking part in the study. However, your participation will contribute to the understanding of knowledge and behavior associated with drug use

WHO WILL SEE THE INFORMATION THAT YOU GIVE?
This study is anonymous. That means that no one, not even members of the research team, will know that the information you give came from you.
Please be aware, while we make every effort to safeguard your data once received from the online survey/data gathering company, given the nature of online surveys, as with anything involving the Internet, we can never guarantee the confidentiality of the data while still on the survey/data gathering company's server, or while en route to either them or us. It is also possible the raw data collected for research purposes may be used for marketing or reporting purposes by the survey/data gathering company after the research is concluded, depending on the company's Terms of Service and Privacy policies.

CAN YOUR TAKING PART IN THE STUDY END EARLY?
If you decide to take part in the study you still have the right to decide at any time that you no longer want to continue.

WHAT ELSE DO YOU NEED TO KNOW?
There is a possibility that the data collected from you may be shared with other investigators in the future. If that is the case the data will not contain information that can identify you unless you give your consent or the UK Institutional Review Board (IRB) approves the research. The IRB is a committee that reviews ethical issues, according to federal, state and local regulations on research with human subjects, to make sure the study complies with these before approval of a research study is issued.

WHAT IF YOU HAVE QUESTIONS, SUGGESTIONS, CONCERNS, OR COMPLAINTS?

Before you decide whether to accept this invitation to take part in the study, please ask any questions that might come to mind now. Later, if you have questions, suggestions, concerns, or complaints about the study, you can contact the investigator, Ms. Nola Almageni, at nola.almageni@uky.edu. If you have any questions about your rights as a volunteer in this research, contact the staff in the Office of Research Integrity at the University of Kentucky at http://research.uky.edu/ori/ or by dialing +1 (859) 257 9428.

Please check one of the following boxes:

I have read the consent form and **do not agree** to participate in this study. ☐

I have read the consent form and **agree** to participate in the study. ☐

Appendix C

Survey Script

Instructions

The purpose of this study is to examine young adult knowledge, beliefs (e.g., subjective norms and self efficacy) and attitudes regarding drug use and abuse. Please think of what you know and believe about drug use and abuse when answering questions throughout the survey.

Demographic Questions

1. Age:

2. Sex:

   ☐ Male
   ☐ Female

3. How do you define your race/ethnicity?

   ☐ Omani
   ☐ Saudi Arabian
   ☐ Qatari
   ☐ Bahrani
   ☐ Emarati
   ☐ Other (Please specify) _____

4. Which county have you spent most of you life in?

   ☐ Oman
   ☐ Saudi Arabia
   ☐ Qatar
   ☐ Kuwait
   ☐ Bahrain
   ☐ Emirate
   ☐ Other (Please specify) _____

5. Highest level of education completed:

   ☐ Some high school
   ☐ High school diploma or equivalent
   ☐ Some college
   ☐ 2-year college degree
   ☐ 4-year college degree
   ☐ Master's degree
   ☐ Professional or terminal degree

6. What is your approximate yearly income:

   ☐ Low income
   ☐ Low middle income
   ☐ Middle income
   ☐ Upper middle income
   ☐ High income

Marijuana Knowledge Scale

Please respond to the following items using the 7-point semantic deferential scale below Smoking Marijuana or Hashish may:

1. Lead to more frequent chest colds.

Completely false 1 2 3 4 5 6 7 Completely true

2. Impair short-term memory.

Completely false 1 2 3 4 5 6 7 Completely true

3. Increase the risk of developing cancer.

Completely false 1 2 3 4 5 6 7 Completely true

4. Lead to lung disease.

Completely false 1 2 3 4 5 6 7 Completely true

5. Lead to addiction.

Completely false 1 2 3 4 5 6 7 Completely true

6. Make it hard to concentrate.

Completely false 1 2 3 4 5 6 7 Completely true

Brief Sensation Seeking Scale

Please respond to the following items using the 5-point Likert scale below:
(1 = Strongly Agree to 5= Strongly Disagree)

1. I would like to explore strange places.
   Strongly Agree 1 2 3 4 5 Strongly Disagree

2. I would like to take off on a trip with no pre-planned routes or timetables.
   Strongly Agree 1 2 3 4 5 Strongly Disagree

3. I get restless when I spend too much time at home.
   Strongly Agree 1 2 3 4 5 Strongly Disagree

4. I prefer friends who are excitingly unpredictable.
   Strongly Agree 1 2 3 4 5 Strongly Disagree

5. I like to do frightening things.
   Strongly Agree 1 2 3 4 5 Strongly Disagree

6. I would like to try bungee jumping.
   Strongly Agree 1 2 3 4 5 Strongly Disagree

7. I like wild parties.
   Strongly Agree 1 2 3 4 5 Strongly Disagree

8. I would love to have new and exciting experiences, even if they are illegal.
   Strongly Agree 1 2 3 4 5 Strongly Disagree

Positive Attitudes about Marijuana Use Scale

Please respond to the following items using the 7-point semantic differential scale below:
Using Marijuana or Hashish is:

1.	Bad	1	2	3	4	5	6	7	Good.
2.	Dumb	1	2	3	4	5	6	7	Smart.
3.	Unenjoyably	1	2	3	4	5	6	7	Enjoyable.
4.	Unpleasant	1	2	3	4	5	6	7	Pleasant.

Perceived Norms about Marijuana Use

Please respond to the following item using the 5-point Likert scale below:
(1 = Strongly Disapprove to 5= Strongly approve)

1. If you were to use marijuana people who are important to you would:

Strongly Disapprove 1 2 3 4 5 Strongly approve

Self Efficacy Scale

Please respond to the following items using the 5-point Likert scale below:
(1 = Not at all sure I can say no to 5= Completely sure I can say no)

How sure are you that you can say no to Marijuana/Hash in the following situation:

1. You are at a party where more people are using it.
2. A very close friend suggests you use it.
3. You are home alone and feeling sad or bored.
4. You are on public property and someone offers it to you.
5. You are hanging out at a friends house whose parents are not home

Lifetime Marijuana Use Question #1

Please respond to the following items using "yes" or "no" below:

1. Have you ever, even once, used marijuana or hashish?

   Yes No

Frequency of Marijuana Use Question #2

Please respond to the following item using a numerical value:

1. How many times have you used marijuana or hashish in the last 30 days

Behavioral Intentions to Use Marijuana

Please respond to the following items using the 4-point Likert scale below:
(1 = Definitely will not to 4= Definitely will)

1. How likely are you to use Marijuana/Hash even once in the next 12 months.

   Definitely will not 1 2 3 4 Definitely will

2. How likely are you to use Marijuana/Hash nearly every month for the next12 months.

   Definitely will not 1 2 3 4 Definitely will

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